Space Weather Forecast

Issued on Wednesday, 09 February 2022 at 12:28 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor Storm activity likely day 1 (09 February) and chance for day 2 (10 February). Active electron fluence days 1 and 2 (09 and 10 February). Chance of a Moderate-class flare.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over through the past 24 hours, with occasional Common-class X-ray flares from a number of active regions, spread across the visible disc, and currently amounts to four. No further Earth-directed CMEs (coronal mass ejections) have been observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind has declined a little further during the past 24 hours and is now close to 400 km/s. Total magnetic field strength has been weak, with the north-south component also varying weakly. Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: No solar radiation storms have been observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain low through the next four days, with a chance of isolated Moderate activity due to the three large regions on the visible disc.

Solar Wind / Geomagnetic Activity: A CME which left the Sun on 06 February is forecast to arrive on 09 February. A fast wind is then expected to affect the Earth from late on day 4 (12 February). Geomagnetic activity starting Quiet then becoming Unsettled to Active on arrival of the CME with a Chance of a Minor Geomagnetic Storm. Residual and decreasing effects of the CME are then likely through days 2 and 3 (10 and 11 February). The onset of the fast wind on day 4 gives a further enhanced risk of another Minor Geomagnetic Storm.

Energetic Particles / Solar Radiation: Solar radiation storms carry a daily slight chance of rising close to, or just above, the S1 level given any significant moderate-class X-ray flaring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	50	50	20	20
Strong	G3	No	5	5	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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